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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WILLIAMS, CLAYTON R

ART UNIT	PAPER NUMBER
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2457

NOTIFICATION DATE	DELIVERY MODE
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11/12/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/804,724	Applicant(s) ROLIA ET AL.	
	Examiner Clayton R. Williams	Art Unit 2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-27, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-12, 14-27, 29 and 30 are pending in this application per amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 15, 16, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Gasca, Jr. et al (20050198231: hereinafter Gasca).

For claims 1, 15, 29 and 30, Gasca discloses:

A method of policing resources in a computing utility facility, comprising:

intercepting an advanced request for resources from an application admitted to access a pool of resources associated with the computing utility facility and prior to utilization of the pool of resources to execute the application ([0057], lines 1-4: “At block 300, the process waits for a new provisioning request”. The utility computing system receives a provisioning request on behalf a customer application.);

acquiring an entitlement profile associated with the application to determine if application is entitled to requested resources over a time period ([0057], lines 5-8: “At block 302, customer entitlement is checked. Checking customer entitlement (302) is a matter of knowing what kind of resources are promised in the service level agreement (SLA)”. Furthermore, [0057], lines 16-18: “Additionally, there could be time constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.”);

identifying an entitlement value and corresponding sliding window of the time period from the entitlement profile ([0057], lines 16-18: Utility computing system curtails use of resources with respect to specific time windows. “Additionally, there could be time constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.”);

determining if the request for resources exceeds the entitlement value associated with the sliding window ([0057], lines 7-11: “For examples, stored customer information extracted from an SLA may say that the customer is entitled to the use of Z number of database servers. If the provisioning request is for Z+1, the customer is not entitled to have that provisioning request fulfilled); and

indicating application entitlement to the request for resources in response to the determining and if the request is excessive including throttling of the requested resources when the application is not entitled to the additional resources in accordance with the entitlement profile ([0057], lines 16-18: Utility computing system curtails use of resources with respect to specific time windows. “Additionally, there could be time

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constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.”).

For claims 2 and 16, Gasca discloses:

The method of claim 1 further comprising:

acquiring additional sliding windows and corresponding additional entitlement values to determine if the request for resources exceeds at least one entitlement value and sliding window combination ([0057], lines 1-4: “At block 300, the process waits for a new provisioning request”. The utility computing system receives a provisioning request on behalf a customer application.); and

indicating that the application is not entitled to the requested resources when the request exceeds the entitlement value in at least one entitlement value and sliding window combination ([0057], lines 16-18: Utility computing system curtails use of resources with respect to specific time windows. “Additionally, there could be time constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.”).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-12, 14, 17-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasca, in view of Shabauddin (6877035: hereinafter Shabauddin).

For claims 3 and 17, Gasca fails to explicitly disclose:

The method of claim 1 wherein the entitlement profile associated with the application describes the burstiness of the application over the time period.

However, Shabauddin discloses a resource sharing system wherein predicted client behavior is modeled for purposes of forecasting future resource requirements (Shahabuddin, col. 5, lines 31-32, and col. 6, lines 10-15 and 21-24: The client resource requirement is modeled as a stationary stochastic process. Web access rates are typically distributed differently during the day. This fact is captured by dividing the day into k time slots (e.g., k=24 and each time slot is an hour long) and modeling the resource requirements of each client as a different stationary stochastic process in different time slots and for different resources. For r resources and k time slots, the resource requirement of each client is modeled as a random vector having $d=r*k$ dimensions.). Gasca and Shabauddin are analogous art because both disclose methods for allocating shared resources in a utility computing system on a per customer basis.

It would have been obvious to one skilled in the art at the time of the invention to introduce Shabauddin's teachings of predicting client resource demands with Gasca's teachings of provisioning shard resources per customer agreement because Shabauddin would extend Gasca's provisioning system to take into account the

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anticipated needs of a hosted client application. As a consequence, shared utility computing resources could be more efficiently allocated in light of predicted customer application behavior.

For claims 4 and 18, the combination of Gasca and Shabauddin discloses:

The method of claim 1 wherein a burst loading factor associated with each sliding window corresponds to the burstiness of the application and identifies a portion of an aggregate entitlement to the resources available to fulfill the request (Shahabuddin, col. 5, lines 31-32, col. 6, lines 10-15 and col. 6, lines 21-24).

For claims 5 and 19, the combination of Gasca and Shabauddin discloses::

The method of claim 4 wherein a larger burst loading factor is associated with more bursty applications that may need resources more rapidly compared with a smaller burst loading factor is associated with applications that may not need resources as rapidly (Shahabuddin, col. 6, lines 35-45: The past access pattern of client i is used to estimate the distribution of [future client resource demands]).

For claims 6 and 20, the combination of Gasca and Shabauddin discloses:

The method of claim 1 wherein the entitlement value is derived from historical trace information collected while the application is using resources (Shahabuddin, col. 7, lines 40-44: The monitoring system 112 consequently produces a utilization pattern database 114, which is provided as input to the decision support system 116. The

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decision support system 116 provides suggestions to a module 122 for allocating resources optimally to clients.).

For claims 7 and 21, the combination of Gasca and Shabauddin discloses::

The method of claim 1 wherein the burst loading factor is derived from the historical trace information collected while the application is using resources (Shahabuddin, col. 7, lines 40-44).

For claims 8 and 22, the combination of Gasca and Shabauddin discloses::

The method of claim 3 wherein the resource usage is determined according to an estimated probability mass function (Shahabuddin, col. 6, lines 10-16: The client resource requirement is modeled as a stationary stochastic process.).

For claims 9 and 23, the combination of Gasca and Shabauddin discloses::

The method of claim 4 wherein the estimated probability mass function further includes a confidence interval corresponding to a sample size used for determining the estimated probability mass function (Shahabuddin, col. 6, lines 35-49: Alpha-satisfiability is introduced as a measure of QoS. A client is said to be alpha-satisfied if the client receives a promised capacity at least alpha proportion of time in each dimension.).

For claims 10 and 24, the combination of Gasca and Shabauddin discloses::

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The method of claim 1 wherein the entitlement value operates as a metric for determining whether an application is entitled to the requested resources (Shahabuddin, col. 7, lines 47-49: The decision support system takes input from monitoring system produced database model and service level agreements to make decisions regarding allocation of resources).

For claims 11 and 25, the combination of Gasca and Shabauddin discloses:

The method of claim 10 wherein the entitlement value for an application is proportional to the burstiness of the application in view of resource usage derived from historical trace data (Shahabuddin, col. 7, lines 40-44).

For claims 12 and 26, the combination of Gasca and Shabauddin discloses:

The method of claim 1 wherein determining if the request for resources exceeds the entitlement value further depends on a confidence interval associated with the entitlement value and the number of sample values used to identify the entitlement value (Shahabuddin, col. 6, lines 10-15 and 35-49: A disclosure of utilization patterns having confidence interval bounds and accuracy based on number of data samples taken to construct model).

For claims 14 and 28, the combination of Gasca and Shabauddin discloses::

The method of claim 1 wherein indicating application entitlement includes clawing back resources already allocated to the application when the application has exceeded a time

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limit for using the allocated resources (Gasca, [0057], lines 16-18: Utility computing system curtails use of resources with respect to specific time windows. “Additionally, there could be time constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.”)

Response to Arguments

Applicant’s arguments have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection have been made.

Applicant argues previously cited prior art does not disclose 1) a system that acquires customer entitlement profiles for shared computing resources over defined time windows; and 2) the system, prior to granting a customer resource request, determining if said request exceeds the customer’s entitlement. Examiner respectfully disagrees.

Regarding argument 1, Gasca ([0057], lines 7-11) discloses “For examples, stored customer information extracted from an SLA may say that the customer is entitled to the use of Z number of database servers. If the provisioning request is for Z+1, the customer is not entitled to have that provisioning request fulfilled”. As such, Gasca discloses a utility computing system that allocates resources to customer applications on the basis of entitlement profiles that include SLA contracted time windows.

Regarding argument 2, Gasca ([0057], lines 16-18) discloses “Additionally, there could be time constraints (e.g. the customer is entitled to 20 servers between 8 am and 5 pm, but only 10 servers the rest of the time.” More succinctly stated, Gasca will not fulfill a request for resources in excess of those contractually promised to a customer if such a request occurs outside of a permitted time-window.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clayton R. Williams whose telephone number is 571-270-3801. The examiner can normally be reached on M-F (8 a.m. - 5 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Clayton R Williams/
Examiner, Art Unit 2457
10/31/2009

/ARIO ETIENNE/
Supervisory Patent Examiner, Art
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